



ISSN 2456-3110

Vol 9 · Issue 2

February 2024

Journal of
**Ayurveda and Integrated
Medical Sciences**

www.jaims.in

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences



Maharshi Charaka
Ayurveda

Indexed

Pharmaceutico-Analytical Study of *Kaidaryadi Ghanavati* - A Poly Herbal Formulation

Rohini HD¹, Prashanth AS²

¹Ph.D. Scholar, Department of Kayachikitsa, Ayurveda Mahavidyalaya, Hubballi, Karnataka, India.

²Professor and Research Guide, Department of Kayachikitsa, Ayurveda Mahavidyalaya, Hubballi, Karnataka, India.

ABSTRACT

Kaidaryadi Kashayam is an herbal preparation which is commonly used in *Udaragata Vikaras* like *Pravahika*, *Agnimandhya* and *Grahani* etc. Even though this *Yoga* is used most frequently used and having only four easily available ingredients very less companies are preparing the *Kashaya*. The excellent results are seen in the *Grahani*, *Pravahika* etc diseases conditions. The palatability is a challenge for taking the *Kashya* and also transportation is a challenge. In the present study here attempt has been made to prepare *Ghanavati* of *Kaidaryadi Kashaya* of *Chikitsa Manjari* text book by *Rasakriya* method. The prepared *Vati* was subjected for physicochemical and phytochemical analysis, HPTLC, microbial load as per the WHO guidelines. Efforts were made to set the analytical standards for the *Kaidaryadi Ghanavati* which were not reported till date. Loss on drying - 10.084%, Ash value -13.366%, Acid insoluble ash - 1.287%, Water soluble extractive - 79.793%, Alcohol soluble extractive -4.064%, Hardness - 10kg/cm, Friability - 0.004%, Disintegration - 20min, pH - 5.23, in HPTLC of *Kaidaryadi Ghanavati* maximum four spots at short UV and maximum seven spots long UV. Microorganisms in the formulation were found to be 24CFU/ml.

Key words: *Kaidaryadi Ghanavati*, *Physicochemical Analysis*, *Phytochemical Analysis*, *HPTLC*, *Microbial load*.

INTRODUCTION

It is the very famous *Ayurvedic Kashya* preparation mentioned in Malayalam text book name *Chikitsa Manjari* and author of that book is unknown. The ingredients are *Naagara*, *Kaidarya*, *Haritaki* and *Patola* in a proportion of 1:3:4:4 respectively. *Phalashruti* of this *Yoga* is explained in *Udaragata Vikaras* like *Pravahika*, *Agnimandhya* and *Grahani*^[1] etc. The primary preparation *Kashaya*(decoction) is used as base in preparation of medicated *Taila*, *Ghee*, *Arista*, *Rasakriya* etc^[2] With the concept of *Rasakriya* classical formulation of *Kaidaryadi Kashaya* was modified into a

Ghanavati form for better efficacy and palatability.

The *Kashaya* is further reheated to form the *Rasakriya/Ghana*.^[3] Solidified decoctions or *Swarasa* of a drug or drugs is *Ghana* or *Rasakriyas*. In other words they are water soluble extracts in solid form. Water soluble active principles of a drug can be extracted and preserved in better form for many days, when compared to *Kashaya*, *Choorna*, and other preliminary preparations. The dose of a drug could be minimized in this form.^[4] The *Ghanavatis* as they are in concentrated form of *Kashaya* the dosage of the drug may be reduced by preparing the *Ghanavatis*.

In the present study effort is made to prepare *Kaidaryadi Ghanavati* as per classical reference. The organoleptic, physicochemical and phytochemical, HPTLC and microbial analysis was done by considering the Parameters mentioned for standardization of *Vati/Gutika/Modaka* as the preparation is in *Vati* form.

MATERIALS AND METHODS

Collection of Raw Drugs

All the required raw drugs was collected from KLE pharmacy and authenticated of raw drugs was done in

Address for correspondence:

Dr. Rohini HD

Ph.D. Scholar, Department of Kayachikitsa, Ayurveda Mahavidyalaya, Hubballi, Karnataka, India.

E-mail: drrohinihd@gmail.com

Submission Date: 08/12/2023

Accepted Date: 19/01/2024

Access this article online

Quick Response Code



Website: www.jaims.in

DOI: [10.21760/jaims.9.2.10](https://doi.org/10.21760/jaims.9.2.10)

central research facility, Shri BMK Ayurveda Mahavidyalaya, Belgaum. The list of the ingredients mentioned in table no 1.

Table 1: List of ingredients with quantity and part used.

SN	Drug name	Botanical name	Quantity	Part used
1.	Naagara	<i>Zinziber officinale</i>	1 part	Rhizome
2.	Kaidarya	<i>Murraya koenigii</i>	3part	Leaves
3.	Haritaki	<i>Terminalia chebula</i>	4part	Fruit
4.	Patola	<i>Trichosanthes dioica</i>	4 part	Root, Leaves, Fruit, Stem

Figure 1: Photographs of ingredients of Kaidryadi Ghanavati



Haritaki



Patola



Preparation of Kaidaryadi Ghanavati

All the individual drugs were taken in equal parts, kept for soaking overnight by adding 1/4th quantity of water in the total measurement of the water. On the next day after adding remaining amount of water it was kept over low flame till volume of water reduced to 1/4th. During complete process of making *Kashaya* the continuous stirring was there. To maintain the uniform low temperature the biogas masifier is used.

After complete preparation of the *Kashayam*, container was taken out of fire and allowed for complete cooling (*Swanga Sheeta*) and the content was filtered to another vessel through a fine clean cloth. Thus obtained *Kashaya* is *Kaidaryadi Kashaya*. This *Kashaya* is again subjected for reheating under continuous low flame. After about 1/4th of water evaporated the consistency of the liquid started to thicken slowly. The heating process was continued till the semisolid mass is obtained care is taken so that the sticking of the mass to the container and overheating is avoided. Then that cooled semisolid paste is spread very thin on the plastic sheet in a tray with the help of spatula, subjected for drying naturally under sun. It

took almost more than a week for completely drying. After drying it was very hard, it made into small pieces by breaking. The powder of the Ghana of *Kaidaryadi Kashaya* is obtained. This *Ghana* powder was then punched into tablet form which is measuring about 500mg each. Thus, prepared tablets were stored in air tight jar.

Physicochemical and phytochemical parameters

The finished drug was analyzed by using qualitative and quantitative parameters at central research facility Shri B M Kankanawadi Ayurveda Mahavidyalaya, Belgaum. Physical tests like organoleptic characteristics, physico chemical, phyto chemical analysis, was carried out.

HPTLC

1gm of sample of each of *Kaidaryadi Ghanavati*, was dissolved in 10.0ml of ethanol kept overnight and filtered. 6µl of each of the above extract was applied on a pre-coated silica gel F₂₅₄ on aluminum plates to a band width of 7 mm using Linomat 5 TLC applicator. *Kaidaryadi Ghanavati* sample plate was developed in Toluene: Ethyl acetate: Formic Acid (5.0:3.5:0.5). The developed plates were visualized in short UV, long UV and then derivatized with Vanillin sulphuric acid (VSA) reagent subsequently scanned under UV 254nm, 366nm and 620nm (after derivatisation). R_f, colour of the spots, densitometric scan and 3-D chromatograms were recorded.

Microbial Load analysis

Preparation of Casein Soya bean Digest Agar Medium (CSDAM): Casein peptone (15 g), Soya peptone (5 g), Sodium Chloride (5 g) were taken and dissolved in 990 ml distilled water and pH was adjusted to 7.3±0.2 and make up the volume to 1000 ml. Finally add 15 g of agar to the media and autoclaved at 121°C for 20 minutes.

HPTLC and Microbial load analysis was done Sri Dharmasthala Manjunatheshwara Center for Research in Ayurveda and Allied Sciences, Kuthpady, Udupi.

OBSERVATIONS AND RESULTS

Organoleptic evaluation

Various parameters such as colour, odour, taste etc. of *Kaidaryadi Ghanavati* were observed and recorded. The results were mentioned in table no. 2

Table 2: Organoleptic characteristics of *Kaidaryadi Ghanavati*

SN	Parameters	Results
1.	Form	Vati
2.	Colour	Black
3.	Odour	Characteristic strong
4.	Taste	Sour, bitter and astringent

Physicochemical analysis

Physicochemical analysis were carried out by following parameters i.e., loss on drying, total ash, acid insoluble ash, water soluble extract, alcohol soluble extract, average weight, hardness, friability, disintegration, pH results were mentioned in the table no. 3

Table 3: Physico chemical analysis parameters and results

SN	Parameters	Results
1.	Loss on drying	10.084%
2.	Total ash	13.366%
3.	Acid insoluble ash	1.287%
4.	Water soluble extract	79.793%
5.	Alcohol soluble extract	4.064%
6.	pH value (5% solution)	5.23
7.	Tablet Hardness	10kg/cm
8.	Friability test	0.004%
9.	Disintegration	20 min
10.	Average weight	0.495gm

Phytochemical analysis

Preliminary phytochemical analysis was done and the results were mentioned in the table no 4.

Table 4: Phyto chemical analysis parameters and results

SN	Components	Water	Alcohol
1.	Test for carbohydrates	Positive	Negative
2.	Reducing sugar	Negative	Positive
3.	monosaccharides	Negative	Positive
4.	Pentose sugar	Negative	Negative
5.	Non reducing sugar	Positive	Negative
6.	Hexose sugar	Positive	Negative
7.	Proteins	Positive	Negative
8.	Amino acids	Negative	Negative
9.	Steroids	Positive	Negative
10.	Flavonoids	Negative	Positive
11.	Alkaloids	Negative	Negative
12.	Tannins	Positive	Positive
Test For Glycosides			
13.	Cardiac glycosides	Negative	Positive
14.	Anthraquinone glycosides	Negative	Positive
15.	Saponin glycosides	Positive	Positive

HPTLC Study

The given sample of *Kaidaryadi Ghanavati*, was standardized analytically by HPTLC as per testing protocol mentioned in *Ayurvedic Pharmacopoeia of India*. Results as Rf values, Densitometric scan and 3-D Chromatogram are presented in respective tables and figures.

Table 5: Rf value of Ethanolic extract of *Kaidaryadi Ghanavati* at short UV, long UV and after derivatization.

No of spots	Short UV	No of spots	Long UV	No of spots	After derivatization
1	0.22(D green)	1	0.12 (F. blue)	1	0.49(Pink)
2	0.40(green)	2	0.25 (F. dark blue)	-	-

3	0.47(green)	3	0.35 (F.blue)	-
4	0.54(D green)	4	0.38 (F.blue)	-
5		5	0.52 (F.blue)	
		6	0.56 (F.blue)	-
		7	0.86 (f green)	

Figure 2: Densitometric scan of Ethanolic extract at 254nm

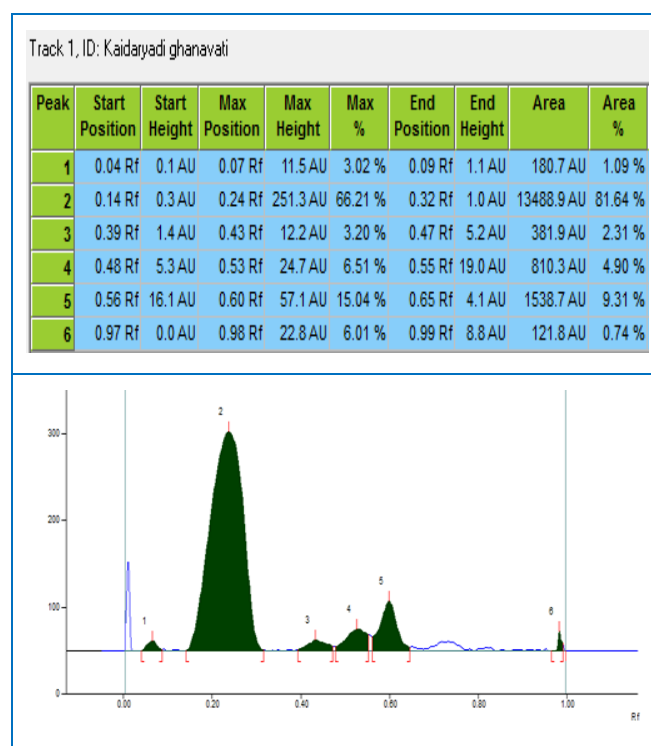
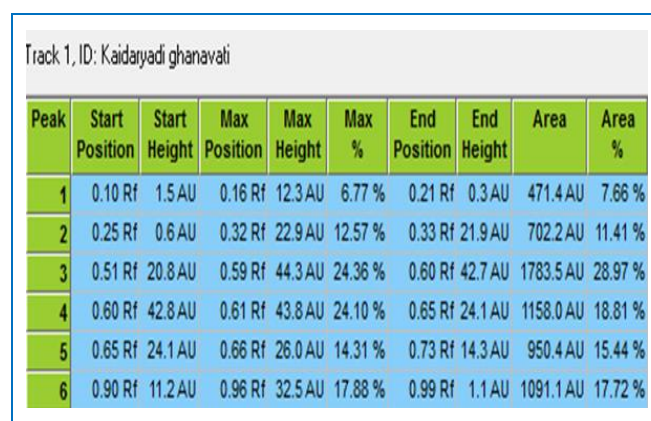


Figure 3: Densitometric scan of Ethanolic extract at 366nm



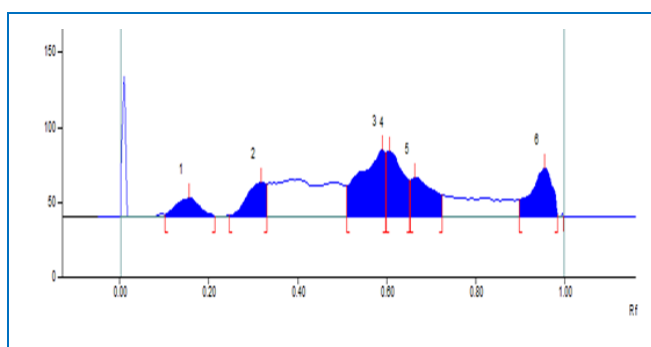
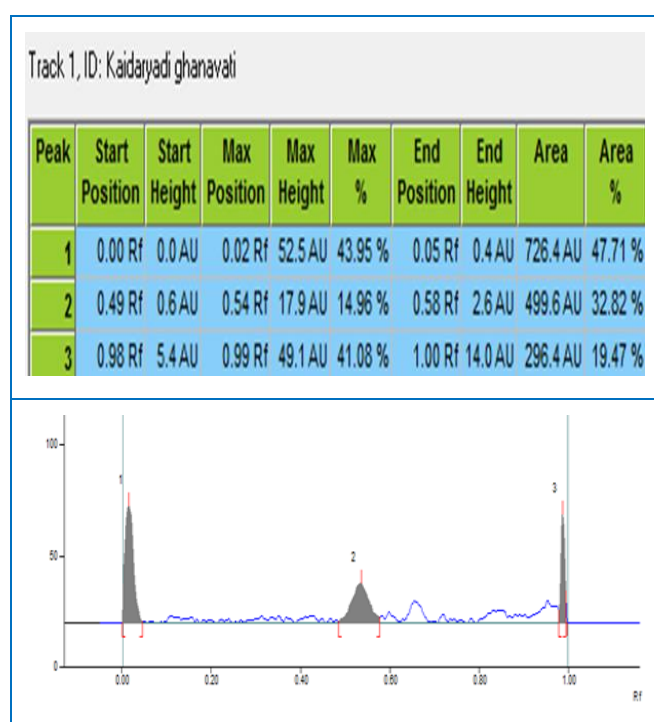


Figure 4: Densitometric scan of Ethanolic extract at 620nm (after derivatisation)



Microbial Load

The given sample *Kaidaryadi Ghanavati* was free from microorganisms. The results were mentioned in table no. 6.

Table 6: Microbial load analysis of *Kaidaryadi Ghanavati*

SN	Dilutions	Number of Colonies (NOC)		CFU/ml
1.	Direct	28	20	24

DISCUSSION

The preparation of *Ghanavati* in a classical method is a lengthy and time-consuming procedure. Most of the manufacturing companies are not preparing *Ghanavati*

in a classical method they are following different new technologies for preparing *Ghanavati* to reduce the time taken for the preparation of *Ghana*. The yield is very less compared to other preparations if we need approximately one kg of *Ghana* minimum of 10 lit of the *Kashaya* need to be subjected for boiling that is only 10 percent yield. Large quantity of the raw drugs is needed for the preparation. One of the benefits of *Ghanavati* is that the carrying is easy and also dosage can be reduced as it is in concentrated form and shelf life also increases.

This *Ghana* extraction may be suitable for drugs which contain more of starch content in them. As *Nagara* is one of the ingredients, which contain starch and which may be the reason that the yield was good in this preparation.

The prepared *Vati* is found to have 495mg average weight $\pm 10\%$ range of weight variation is acceptable.^[5] Bioavailability of the medicine is depending on harness and disintegration. The *Kaidaryadi Ghanavati* found to be having hardness of 10 kg/cm. Hardness was above the normal limit for *Kaidaryadi Ghanavati* and disintegration was in normal limit that is 20 min. If the finished *Vati* is too hard it may not disintegrate in the required period of time^[6] but as the disintegration time is within normal limit of 20 min the bioavailability of the drug may not be hampered. Moisture content (loss on drying) found to be 10.084%. Which is also within normal limit if the moisture content is more it may easily catch the microbial contamination. Ash value is the criteria for considering the purity of crude drug.

Kaidaryadi Ghanavati contained 13.366% of total ash and 1.287% of acid insoluble ash. The 79.793%w/w of water soluble extractive and 4.064%w/w of alcohol soluble extractive were present this indicated the drugs are having very good solubility in water. In HPTLC of *Kaidaryadi Ghanavati* maximum four spots at short UV and maximum of seven spots long UV.

In microbial load the found result was 24CFU/ml by direct method which was also falling into the acceptable range for microbial contamination,^[7] so further serial dilution method was not followed.

CONCLUSION

The analytical study carried out in the present study it can be concluded that the formulation of *Kaidaryadi Ghanavati* contains all good characters of an ideal *Vati*, and also the formulation is of good quality and purity. API standards are not mentioned for this formulation. Hence the obtained results of present study may serve as reference standards in the preparation of drug formulation and may also help in further clinical research. Further study is necessary to explore other parameters related to standardization and to set the limit for reference of *Kadiaryadi Ghanavati*.

REFERENCES

1. Chikitsa Manjari; editor D.Sriman Nambuthiri; Vidyarambham Publishers, Alappuzha; 6th edition; May 2003.
2. Shobha G Hiremath. A Text Book of Bahisajya Kalpana, IBH Prakashana, Bangalore, 2016, chapter 9, p103.
3. Sharangadhara, Sharangadhara Samhita with Adamalla's Dipika and Kasirama's Gudarthi Dipika commentary, Edited by Pandit Parusuram Sastri Vidyasagar, Madhyama Khanda, Chakhambha Orientalia, Varanasi 6th edition:2005, chapter 8/1, p206.
4. Shobha G Hiremath. A Text Book of Bahisajya Kalpana, IBH Prakashana, Bangalore, 2016, chapter 10, p137.
5. Tanna I, Samarakoon SM, Chandola HM, Shukla VJ. Physico-chemical analysis of a Herbo-mineral compound Mehamudgara vati - A pilot study. Ayu. 2011 Oct;32(4):572-5. doi: 10.4103/0974-8520.96136. PMID: 22661857; PMCID: PMC3361938.
6. Sudheendra V. Honwad. A Hand Book of Standadization of Ayurvedic Formulations, Chaukhambha Orientalia Varanasi. Reprint 2018, chapter 3, p35 &37
7. D. K. O'TOOLE NSW. Methods for the direct and indirect assessment of the bacterial content of milk. Journal of Applied Bacteriology. 1983,55.187-201.

How to cite this article: Rohini HD, Prashanth AS. Pharmaceutico-Analytical Study of Kaidaryadi Ghanavati - A Poly Herbal Formulation. J Ayurveda Integr Med Sci 2024;2:62-67.
<http://dx.doi.org/10.21760/jaims.9.2.10>

Source of Support: Nil, **Conflict of Interest:** None declared.
